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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/074,346

02/12/2002

Igor Gurevich

5691

7590

12/12/2003

Leonid Velikov
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San Carlos, CA 94070

EXAMINER

MACCHIAROLO, PETER J

ART UNIT

PAPER NUMBER

2875

DATE MAILED: 12/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/074,346

Applicant(s)

GUREVICH ET AL.

Examiner

Peter J Macchiarolo

Art Unit

2875

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☒ Claim(s) 3 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 0202.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted on February 12, 2002 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Drawings

2. The drawings are objected to for the following informalities:
3. The informal drawings filed in this application are acceptable for examination purposes only. If the application is allowed, Applicant will be required to submit new formal drawings.

Specification

4. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

5. Claim 3, which depends from claim 1, is objected to because of the following informalities: the terms, "said beam emission direction," and, "said beam receiving direction" do not have proper antecedent basis. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Kikuchi et al (USPN 6,142,680; “Kikuchi”).

7. In regards to claims 1 and 2, Kikuchi discloses in figure 1, an optical module for a high-speed bidirectional transceiver having a first optical path and a second optical path for transmitting optical beams in mutually opposite directions comprising: a housing (20), a laser diode (6) located in said housing and generating a first optical beam having a first direction along said first optical path; a photodiode (9) located in said housing and receiving a second optical beam having a second direction opposite and parallel to said first direction along said second optical path; and an optical fiber connection unit attached to said housing and having an optical fiber (12) for transmitting said first optical beam and said second optical beam.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1, 3, and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nguyen et al (USPN 6,624,507; "Nguyen").

9. In regards to claims 1, 3, and 4, Nguyen discloses in figure 4b, an optical module for a high-speed bidirectional transceiver having a first optical path and a second optical path for transmitting optical beams in mutually opposite directions comprising: a housing (408), a signal generating unit (410) located in said housing and generating a first optical beam having a first direction along said first optical path; an optical detector (412) located in said housing and receiving a second optical beam having a second direction opposite and parallel to said first direction along said second optical path; and an optical fiber connection unit attached to said housing and having optical fibers (416) for transmitting said first optical beam and said second optical beam, wherein the optical fiber is arranged substantially perpendicular to the beam emission direction and the beam receiving direction. Nguyen further discloses a first and second mirrors.

10. The Examiner acknowledges the fact that it is not clear if the mirrors, optical signal generating and receiving units are arranged to receive and transmit the coaxial signals into a single fiber. However, this arrangement is extremely well known in the transceiver art to allow for efficient use of an optical fiber.

11. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to construct the optical module of Nguyen, including the optical signal generating and receiving units arranged to receive and transmit signals into a single fiber, since this is known to allow for efficient use of an optical fiber.

12. Claims 2, and 5-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nguyen in view of Kikuchi.
13. In regards to claims 2, and 5-8, Nguyen teaches all of the recited limitations of claim 4 (above).
14. Nguyen is silent to the optical module having optical lenses, and is also silent to the specifics of the photoemitter and photodetector structures.
15. However, Kikuchi shows in figure 1 that the an optical module similar to Applicant's can have lens (7, 10, 13) to collimate the first and second optical beams, and this configuration produces extremely efficiently optical signals without reflecting erroneous light. Further, Kikuchi teaches that the optical signal generating unit is a laser diode and the optical beam receiving unit is a photodiode, and are disposed in parallel recesses, and this configuration is well known in the art¹.
16. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to construct the optical module of Nguyen and Takahashi, including collimating the first and second optical beams, since this configuration produce extremely efficiently optical signals without reflecting erroneous light.
17. In regards to claim 9, Nguyen and Kikuchi teach all of the recited limitations of claim 7 (above).
18. Nguyen further shows in figure 4b that the laser diode is located in the second position, and the photodiode is located in the first position.

¹ Kikuchi, col. 1, ll. 60-67; and col. 3, ll. 24-36.

19. Nguyen is silent to the specifics of the mirrors, but does indicate that they are configured to reflect light signals to and from the optical fibers².

20. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to construct the optical module of Nguyen and Kikuchi, including Applicant's mirror limitations, i.e. the first mirror being a full reflection mirror, and the second mirror is transparent for a beam reflected from the full reflection mirror towards the optical fiber, but fully reflective for the second optical beam emitted from the optical fiber connection unit towards the photodiode, since this is the only configuration in which Nguyen's optical module will properly operate.

21. In regards to claims 10 and 11, Nguyen and Kikuchi teach all of the recited limitations of claim 9 (above).

22. Both Kikuchi is silent to the specific types of collimating lenses used in the invention.

23. However, an optical lens unit being a collimating optical objective composed of at least one circular aspherical lens, or the optical lens unit being a collimating anamorphic objective composed of at least two mutually perpendicular cylindrical lenses, are both known to provide specific advantages, i.e. optical steering, etc.

24. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to construct the optical module of Nguyen and Kikuchi, including the optical lens configurations discussed above, since it has been held to be within the general skill

² Nguyen, col. 6, ll. 3-4.

Art Unit: 2875

of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

25. In regards to claim 12, Nguyen and Kikuchi teach all of the recited limitations of claim 10 (above).

26. Both Nguyen and Kikuchi are silent to an optical filter being positioned between the second optical lens unit and the photodiode.

27. However, this is the only configuration in which Nguyen's optical module will properly operate. The rejection is the same as for claim 9 (above).

28. In regards to claims 13-16, Nguyen and Kikuchi teach all of the recited limitations of claim 8 (above).

29. Both Nguyen and Kikuchi are silent to the laser diode being located in the first position and the photodiode being located in the second position.

30. However, this is an obvious matter of design choice, since it has been held that rearranging parts of an invention involves only routing skill in the art. *In re Japikse*, 86 USPQ 184.

31. Further, the limitations of claims 14-16 have been discussed in the rejections of claims 9-11, respectively, and the reasons for combining are the same.

32. In regards to claims 17-20, Nguyen and Kikuchi teach all of the recited limitations of claims 1, 4, 8, and 13 (above).

33. Nguyen is silent to the specifics of the fiber optic cable attachment location.

34. However, Kikuchi shows the fiber optic module comprises a third collimating lens unit (13), an optical fiber holding means (not labeled), a spacer between said third collimating lens unit and said optical fiber holding means (P2), and an optical fiber (12), said spacer being sandwiched between said third collimating lens unit and said fiber holding means, said fiber having a core and being in butt connection with said spacer, said third collimating lens unit being collimating for said second optical beam and being focusing for said first optical beam for focusing said first optical beam onto said core.

35. Although Kikuchi is silent to the optical fiber connection unit being a pre-assembled unit, it would have been obvious to one having ordinary skill in the art to make it a pre-assembled unit, since it has been held that constructing a formerly integral structure in various elements involves only routine skill in the art. *Nerwin v. Erlichman*, 168 USPQ 177, 179.

36. In regards to claims 21-24, Nguyen and Kikuchi teach the structure of the optical module (see above rejections to claims 1-20).

37. Neither Nguyen nor Kikuchi disclose a method for facilitating optical alignment while assembling the optical module.

38. However, the method steps of arranging a first and second optical path; forming a first collimated optical beam by collimating said first optical beam; forming a second collimated optical beam by collimating said second optical beam; arranging at least a part of the collimated beams; arranging at least a part of said optical components; and aligning said optical components

Art Unit: 2875

by moving the optic cable are very broad and obvious method steps. Hence, the structure discloses by Nguyen and Kikuchi meets Applicant's recited method step limitations.

39. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to construct the optical module of Nguyen and Kikuchi, with the method of claim 21, since the method steps are obvious in light of the resultant structure.

Conclusion

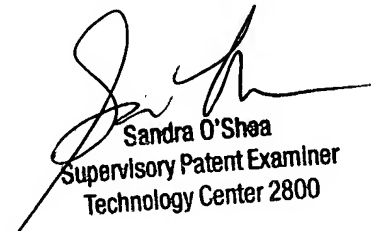
40. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

41. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter J Macchiarolo whose telephone number is (703) 305-7198. The examiner can normally be reached on 7.30 - 4:30, M-F.

42. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra O'Shea can be reached on (703) 305-4939. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

43. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

pjm



Sandra O'Shea
Supervisory Patent Examiner
Technology Center 2800